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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/273,436	03/22/1999	JYRI HUOPANIEMI		7133

7590 02/23/2007

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EXAMINER	
MEI, XU	
ART UNIT	**PAPER NUMBER**
2615	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/23/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)	
	09/273,436	HUOPANIEMI ET AL.	
	Examiner	Art Unit	
	Xu Mei	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 November 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-18,20 and 23-28* is/are rejected.

7)☒ Claim(s) *19, 21-22* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the applicant's amendment dated 11/28/2006.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 15-18, 20, 23 and 25-26 are rejected under 35 U.S.C. 102(e) as being anticipated by Mukojima (US-6,418,226).

Regarding Claim 15, Mukojima discloses a method for processing directed sound in an acoustic virtual environment an electronic device (see Fig. 1 and claim 1), said acoustic virtual environment comprising at least one sound source (input 10), the method comprising: attaching a reference direction (center point P_o) and set selected directions (selected geometric directions relative to the center point P_o) to the at least one sound source, each selected direction differing from said reference direction, establishing direction dependent filtering arrangement (filters 3 & 4) having at least one parameter disposed to at least partly determine a filtering effect of the direction

dependent filtering arrangement, said at least one parameter enabling the direction dependent filtering arrangement to *generate a signal that represents sound propagating from* said at least one sound source *along a line in* a direction that deviates from said reference direction (col. 6, line 18-col. 7, line 16; this broadly claimed limitation is read on Mukojima as discussed in the mentioned columns and lines, for example: where an azimuth component, signal, is generated to represents sound propagating from the at least one sound source along a line in a direction that deviates from the reference direction, the leftward acoustic direction from the source to the left ear of the listener in the virtual sound field such that the leftward sample point is selected substantially coincident with the azimuth component of the leftward acoustic direction), for each selected direction defining at least one value for each of said at least one parameter (geometric direction parameter Θ or Φ for example), and filtering signal (by filters 3 and 4) representing the sound emitted by said at least one sound source with the direction dependent filtering arrangement.

Regarding Claims 16-17, Mukojima discloses defining a certain reference direction and a set of directions differing from for said at least one sound source (Figs 2-3), and associating a filter with each direction differing from the determined reference direction so that the effect of each filter on the signal representing the sound emitted by said at least one sound source depends on a set of parameters relating to the filter (filters of Fig. 4). Where said parameters relating to each filter are amplification factors in order to determine the relative amplification of the sound direction in different directions from the sound source (col. 6, lines 13-17).

Regarding Claim 18, Mukojima further discloses wherein said amplification factors comprise separate amplification factors for different frequencies of the sound in at least one determined direction differing from the reference direction (col. 4, lines 56-63).

Regarding claim 20, see col. 5, lines 57-65.

Regarding claim 23, the input sound source 10 of Mukojima is a real sound source.

Regarding Claim 25, Mukojima a system processing directed sound in an acoustic virtual environment in an electronic device (see Fig. 1 and claim 1), said acoustic virtual environment comprising at least one sound source (input 10), the system comprising: means for attaching reference direction (center point P_o) and a set of selected directions (selected geometric directions relative to the center point P_o) for the least one sound source, each selected direction differing from said reference direction (see Figs. 2-3); a direction dependent filtering arrangement (filters 3 & 4) disposed to filter a signal representing sound emitted by said at least one sound source, the direction dependent filtering arrangement having least one parameter (geometric direction parameter Θ or Φ, for example) disposed to at least partly determine filtering effect of the direction dependent filtering arrangement (col. 6, lines 18-53), said at least one parameter (geometric direction parameter Θ or Φ) enabling the direction dependent filtering arrangement to dependent filtering arrangement to *generate a signal that represents sound propagating from* said at least one sound source *along a line in* a

direction that deviates from said reference direction (col. 6, line 18-col. 7, line 16; this broadly claimed limitation is read on Mukojima as discussed in the mentioned columns and lines, for example: where an azimuth component, signal, is generated to represents sound propagating from the at least one sound source along a line in a direction that deviates from the reference direction, the leftward acoustic direction from the source to the left ear of the listener in the virtual sound field such that the leftward sample point is selected substantially coincident with the azimuth component of the leftward acoustic direction); and means (HRTF database 5) for associating a value for each of said at least one parameter with each selected direction.

Regarding Claim 26, Mukojima further discloses a transmitting device and a receiving device (Fig. 1).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mukojima.

Regarding Claim 27, Mukojima discloses a device as stated apropos of claim 26 above but does not disclose the MPEG-4 standard. However, it would have been

obvious to one of ordinary skill in the art at the time the invention was made to use a notoriously well-known standard such as MPEG-4 as a method of transmitting audio signals.

Regarding Claim 28, Mukojima discloses a device as stated apropos of claim 26 above but does not disclose using the extended VRML97 standard. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a standard language to perform set tasks.

6. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mukojima in view of Jot (GB-2,305,092).

Regarding claim 24, Mukojima does not specify the sound source is a reflection. However, utilizing reverberation processing for a source signal to enable a room effect for the acoustic sound is old and well known in the art and is taught by Jot in Figs. 8-10, and page 30, line 19 to page 38, line 4. It would have been obvious to one of ordinary skill in the art to modify the virtual sound processing system of Mukojima as discussed above by utilizing the reverberation processing as discussed by Job, for a source signal, in order to provide improvement for the virtual sound environment by having a real room effect.

Allowable Subject Matter

7. Claims 19 are 21-22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

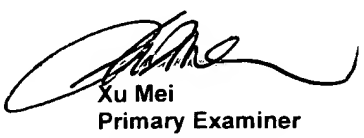
8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xu Mei whose telephone number is 571-272-7523. The examiner can normally be reached on maxi flex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Xu Mei
Primary Examiner
Art Unit 2615
02/13/2007